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# Preparing and Planting Trees



*By W. K. NEWELL*  
President State Board of Horticulture  
at Y. M. C. A., Portland, Ore.

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# Preparing and Planting Trees.

By W. K. Newell, President State Board of Horticulture, at Y. M. C. A., Portland, Ore.

 O plunge into my subject at once, that of pruning, I think it is best to say first that it is perhaps one of the most difficult subjects to present clearly before an audience without a tree or two to illustrate with. If I could take you into an orchard, I could illustrate very much better the plan or practice of pruning than I can possibly do here this evening.

I think there is not a single branch of the subject of horticulture in which there is such a wide diversity of opinion among horticulturists as to the practice of pruning. It is harder to lay down any definite rules regarding pruning than almost any of the other related branches. We all agree very closely how trees should be planted, cultivated and sprayed, but when it comes to the matter of pruning the tree, it is much more a matter of opinion. Hence the beginner has the greatest difficulty in getting proper advice. I have brought some trees here, so I could do a little bit of illustrating.

First, a few words about selecting a nursery tree before we come to pruning. These trees represent the different grades. They are all root budded trees. I wish to impress upon you first the advantage of getting a budded tree instead of what is frequently sold, a piece root grafted tree. A great many of the French peasant farmers make a business of growing seedlings. The seeds are gathered up throughout the country. They grow them one year and then dig them up in November or December and

ship them to the United States, mostly to our nurseries as apple seedlings, where they are planted out in February, March or April, and grown until August, when they begin budding them. They cut a bud from the bearing trees that they wish to propagate, make a slit in the bark of the seedling and insert that bud under the bark and tie it there, and the bud immediately joins with the tree. It remains dormant until the following spring. Then the seedling is cut off just above the bud, which grows and makes the tree. *Here is a tree one year old from the bud, but it is practically three years old. You know the difference between that and the piece root grafted tree is that when that seedling comes from the nurseryman he will take and prune it, leaving about four or five inches of the root on the top and plant that. This will be pruned and watered throughout the season, thus forcing the root, which will sell the same year, and to all appearances it is just as good a tree as the budded one, but you can readily see that it is impossible for that tree to have the same root system as this when that has been growing two years longer.*

There is a distinction again between grafted trees as they are frequently grown, and between these piece root grafts. If that bud fails to grow in August, the nurseryman will go in February or March and cut that seedling off next to the ground and insert a graft here on the seedling root, which will come on and make a tree by fall that will practically be as good as the budded tree, because it has the same root system. *A tree that has been budded on a three-year-old root is worth double or treble the piece root grafted tree, and that is a point one should always look for in purchasing trees.* There is another point. The nurseryman grades his trees. *First grades are four to six feet high, and what is known as No. 2 grade runs three to four feet in height, and No. 3 trees under three feet in height.* The great tendency among purchasers is to fasten upon the biggest trees that it is possible to get. They want a four to

six foot tree rather than a smaller one, but height alone should not be the guide in selecting the tree. It is fully as important—I should say more important—that the tree should show good caliber here than that it should show height alone. We should pay more attention to that. Many times you can get the trees for much less money of this size than you can for the larger.

Now as regards pruning. If this tree could be taken up from the nursery with all the dirt left on it, of course it could be transferred without much of the root pruning, but if this tree is dug in November, as is usual, and carried over the winter to January, February or March before it is planted, it is inevitable that these smaller roots would become dry and dead, so when this tree is planted all these small roots should be pruned off. The reason is that those roots are so dry that the tip will die anyway and the tree would make a start quicker if the roots are cut off than if they were left to encumber its growth. The top should be pruned vigorously and the roots in proportion, and all broken roots should be removed. These roots should be left from 4 to 6 inches long, and headed back by making a cut on the under side of the root and sloping back in that manner so that when the tree is planted this cut surface will point down to the bottom of the hole. That will tend to form a callous where it is cut and throw out the first feeding roots, so that the cut does not have a chance to dry. That will then force itself down and anchor the tree good and solid, but if all these slender roots were left every one of them would be turning up, and the tendency of the roots would be to grow to the top of the soil. A tree pruned in that shape is very easily planted and has all the root system that is necessary to thoroughly anchor the tree in the ground. It should then be set down about two inches below where the bud was inserted as it stands in the nursery—just barely above the ground—and that puts the roots

down far enough so that when the dirt is properly tramped around it (tramp it good and solid with both feet) it is going to start growth at once. This pruning should not be done until you are ready to plant. If it is a sunshiny or windy day, it is a good plan to puddle the tree. This can be done by dipping the tree in a barrel of liquid mud. Place the barrel on a sled, and as soon as the tree is dipped, take it out and put it in the hole at once.

If you allow the surface to dry it will not callous over and start to grow, taking a long time. In this climate it is always preferable to plant trees in the fall if possible. There is another point that you must remember. If trees are to be planted in the fall, do not get trees that are too green. If you are in a hurry and insist on the nurseryman taking out these trees and shipping them before they are ready, he must strip the leaves off and dig them prematurely before they have perfectly ripened. Trees are sure to suffer from that practice. If not able to plant trees in the fall, it is a good practice to buy them in the fall and have them shipped to your place and heel them in. The trees will winter very much better in an orchard heeled in than they will in the nurseryman's packing shed. When purchasing trees use good business sense as you do in buying other things. Do not wait for an agent to come around and coax you into buying a tree. No nurseryman likes to do this, but they have been almost forced to, because people will not buy otherwise. Make it a practice to go to the nurseryman direct and, if possible, go to his nursery and make your selections.

If trees are planted in the fall, head them back about 18 or 20 inches from the ground the latter part of February. Place a knife just about at the base of the bud and cut about half an inch above the bud. That allows bud room enough there so it will heal over nicely without dying back or allowing any dead wood. That is the way a tree wants to be pruned the first year. Always plant one-year-old trees;



not two. This tree can be pruned and spread just as one wants to. It has been headed in the nursery row about a foot higher than it ought to be in the orchard; that is another practice where demand forces the nurseryman to follow it. Nearly every one who goes to buy a tree wants it like this, and the nurseryman naturally has it up here to make a good big tree—the kind you want. Otherwise this tree has grown very nicely. At the end of the first season this has made a very nice branch. You will notice that these limbs are very well scattered all over the trunk of the tree and do not all come out just at one point. When this is headed back in this manner every bud practically all over the tree from the ground up will grow in the spring. In fact they seem to grow and get two or three inches longer than one wants them. Rub off the lower ones, leaving from six to eight of the top buds (certainly not less than five). Do not leave just the four or five top ones nor rub all in one place. That is practically all a tree should have in a way of pruning the first summer. Some people make a practice of pruning in August if the trees are making too much growth. That may be all right in windy locations, where the wind whips the twigs over to one side, in order to make them stiff enough to stand up against the wind, but that only happens in a few localities. Let the tree grow as tall as it will the first year.

What we want to do is to frame up the skeleton of a tree in such a manner that it will begin to throw out and form width, yet grow up instead of growing out and falling down to the ground so that one cannot get near it to cultivate. Bring it out and tone it up so that it makes a vase shape, keeping the body of the tree close to the ground, having it up sufficiently so that an extension harrow with three or four horses abreast it can be worked throughout the orchard and clear under the tree. With three limbs growing out close together, they will not be properly distributed.

so the first thing is to take a limb right out. It should be pointed up so that it will get plenty of sunshine inside and still allow most of the limbs to remain. There is another point that must be borne in mind; that is, the kind of tree to be pruned. Some trees, like the Northern Spy, tend to grow straight up and make twice the growth in height as they do in width. Other trees, like Jonathans, for instance, tend to grow out and fall down. When pruning a Northern Spy tree, prune invariably to an outside bud the first two or three years, so the tree will spread out. On a Jonathan tree these limbs have a downward tendency and should be pruned to an inside bud in order to keep it from spreading out and lopping over too far. Pruning of young trees should never be done until the freezing weather is past. After the trees get older they can be pruned any time with safety. If one prunes a tree too early these end buds might kill back. Of course, every bud on these limbs will start as soon as the limbs start, and they want to be rubbed off within 12 inches of the ground. Along in June, if they get too thick, prune out a portion of the inside buds that are starting. I would not practice any heading back this second summer except in a very windy location. Every tree should be induced to grow fast and strong for wood growth, and this is accomplished by pruning in the winter time. The general practice of pruning in the winter for wood growth and in the summer for fruit growth holds good.

At the end of the second year and at the beginning of the third, head these limbs again, which should then be from two to four feet long, and the same general principle should be involved, heading these back one-half to two-thirds of their growth, thus making the limbs strong and stocky so that they will not break down under the load of fruit. Never let two limbs start at the same point making a "Y," because invariably they will split down. At the beginning of the third season,

starting in June, thin those limbs out again, and then about the middle of August, if the tree is making good, rapid growth, head back that season's growth anywhere from one-fourth to one-third of its growth. This will tend to check the limbs. There is no reason why a tree should grow six or seven years without bearing. It should begin to bear by the fourth or fifth year, and it is simply a question of proper pruning to bring them into bearing. The Northern Spy takes from 10 to 12 years, but it can be forced into bearing in four years by proper pruning. The third summer is the time to begin the encouragement of the formation of fruit buds. The time to do this depends upon climatic conditions. As a general rule it can be done the first three weeks in August; sometimes a little latter, perhaps. The wood growth is largely over by the first of August, and the tree begins to spread out and increase in caliber rather than in height. That will tend to force out these buds into fruit buds and the tree should bear a few apples the next season.

Practice thinning in the winter time and head back in the summer time. A tree can be kept bearing practically regular crops. Of course, it is impossible to keep any tree bearing practically regular crops, but, of course, it is impossible to keep any tree bearing a full crop regularly. Wonders can be done by this system of pruning.

A bud, if allowed to grow all summer, naturally goes into the end buds, and the fruit buds do not have an equal chance. The other one has to be cut off in order to force the sap back. It naturally goes to the end of the limb. The fruit buds cannot get any sap until after the end of the limb has gotten all it wants.

The further point that it is necessary to make the tree bear as much as possible is the thinning of the fruit. A single bud naturally cannot produce two crops in succession. One bud produces this crop and that is the end of

that particular fruit bud, but where this fruit is borne this year it will start to grow right beside that fruit bud. If that grows as it does on some trees, particularly like the Spitzenberg, 8, 10 or 12 inches long during the summer, that should be pruned off also in the middle of August, that is, after the tree is in full bearing. That will tend the rest of the season to develop other fruit spurs down along this spur the following season. That is rather a difficult point to make clear, but the general practice is, as I said before, head back, cutting off the ends in the summer, and the thinning out of what we call suckers in the winter. It will tend to develop a lot of undesirable suckers. The limbs that are going to be taken out should be taken out in the winter; but after the tree is in bearing you can do that most any time. Thinning out should be done in the winter, and the topping off of the summer's growth should be done in the summer. The tree should have a system of good strong limbs that are strong enough to carry themselves and all the fruit that they should bear without bending down, and these main branches should be filled with fruit buds clear back down to the trunk of the tree, instead of allowing these limbs to grow up 10 and 20 feet and allowing the fruit to form on the end of the tree. The only way to keep them back is to follow a regular system of summer pruning. An apple that is formed along these limbs on a short fruit spur is in much better shape to be grown than if it is away out on the end of a limb. That is even more particularly true of the peach tree than of the apple. At the end of six or seven years the peach tree has got nothing to prune, whereas if the orchardist had pruned that tree back as it should have been, very small, keeping the fruit buds down next to the trunk, it would have lived and borne just as long as the average apple tree.



**SAMPLE OF ONE-YEAR-OLD BUDDED  
ORENCO TREES.**